Remote Sensing Applications Division (RSAD)

CDR Program Office

Weekly Report for Aug 31, 2012
Ed Kearns, Acting Chief
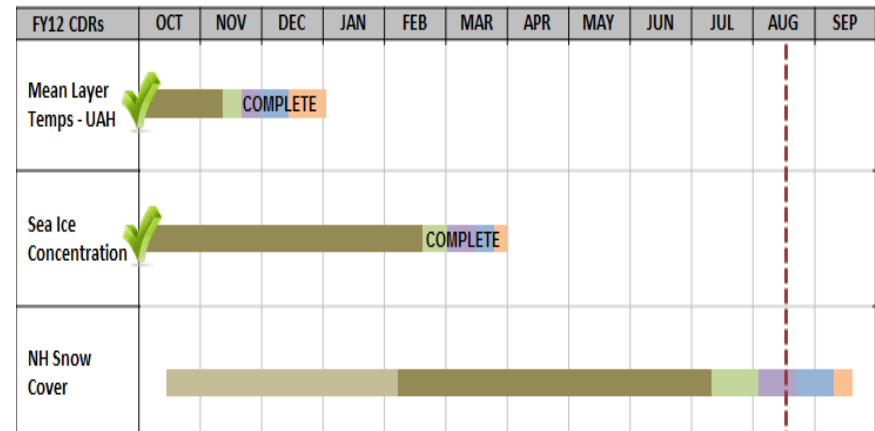
CDR Program Office
FY12 Climate Data Records

Weekly Report – Aug 31, 2012

(1) Mean Layer Temperatures – Univ of Alabama Huntsville (UAH)
- Completed – Nov 17

(2) Sea Ice Concentration
- Completed – Mar 28

● (3) Northern Hemisphere Snow Cover
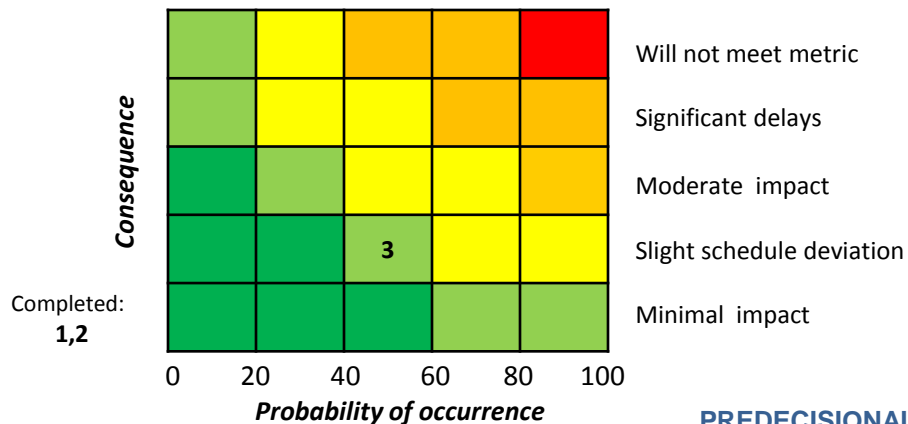- Data set conversion complete, finishing up documentation

● No change   ↑ Increasing Risk   ↓ Decreasing Risk   *Candidate CDRs

*

R2O Schedule

FY12 CDRs	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Mean Layer Temps - UAH	✔	COMPLETE										
Sea Ice Concentration	✔					COMPLETE						
NH Snow Cover												

R2O PHASE:	ASSESSMENT	SUBMISSION PREP	TRANSFER	VERIFY	ARCHIVE	ACCESS

Risk Matrix

Consequence (y-axis): Will not meet metric, Significant delays, Moderate impact, Slight schedule deviation, Minimal impact

Completed: 1,2

Probability of occurrence: 0 20 40 60 80 100

Risk - Mitigation

- **Snow Cover is working on wrap up of CDR IOC items**
  - **Increased IPT meetings to weekly to more closely track progress**
  - **Working on multiple items in parallel finish early**
  - **Continue transition work on the MLT-RSS CDR as first FY13 CDR**

- **No formal QA on product, software, and documentation**
  - **ORR will help alleviate some of the risk**
  - **Will get reviews/input from in house experts as needed**
  - **Need to formally document the current QA steps being done**

PREDECISIONAL DRAFT INFORMATION

= On-track   = Potential management action required   = Management attention required

FY12 TCDR - NH Snow Cover

CDR Product: TCDR – NH Snow Cover, 1966-2012 (10 GB)
GEOSS Societal Benefit: Climate, Water, Ecosystems, Agriculture, Energy

Project Status

- **Completed netCDF dataset conversion**
  - **Added conversion code to source code package**
  - **Data staged for test pull**
- **PI is on vacation this week (Tom was still available)**
- **Robodoc has been run on code headers, MM complete**
- **DSRR set for Wednesday**
  - Once operational, PI will deliver complete dataset each month
- **ORR checklist is in being compiled (target date Sept 14)**

NCDC SOW developed for:
1) Monthly updates for one year
2) QC tools and training

Next Action/Milestone

- Update README and flow diagram with netCDF info (8/24) - **done**
- Complete code documentation (8/24) - **done**
- Complete security review – (8/24)
- Archive all parts of the CDR

(G)   ## Project Risks

- Funding (SDS 2008)
  - SS contract submitted to NCAD; **out on biz ops**
- Input data is made with a person in the loop (daily IMS data)
  - Metadata and docs will detail product strengths/weaknesses

ID	Task Name	Status	Start	Stop	FY12 Q1			FY12 Q2			FY12 Q3			FY12 Q4		
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Initial Assessment	100	10/17/2011	2/9/2012												
2	Transfer Prep	95	2/6/2012	8/28/2012												
2a	Comment Source Code	100	2/6/2012	5/22/2012												
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	90	3/19/2012	6/11/2012												
2c	Create NetCDF Dataset	100	5/30/2012	8/28/2012												
3	Tranfer Code, Docs, and Data	75	4/18/2012	8/31/2012												
4	Verify Code, Docs, and Data	75	4/19/2012	9/7/2012												
5	Archive Code, Docs, and Data	0	5/31/2012	9/14/2012												
6	Provide Access to Code, Docs, and Data	0	6/1/2012	9/21/2012												

NOAA/NCDC Climate Data Record of snow cover extent

NOAA/NCDC Climate Data Record of snow cover extent ()

0   0.2   0.4   0.6   0.8   1

Data Min = 0, Max = 1
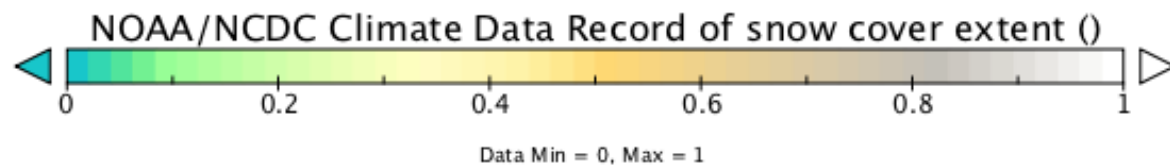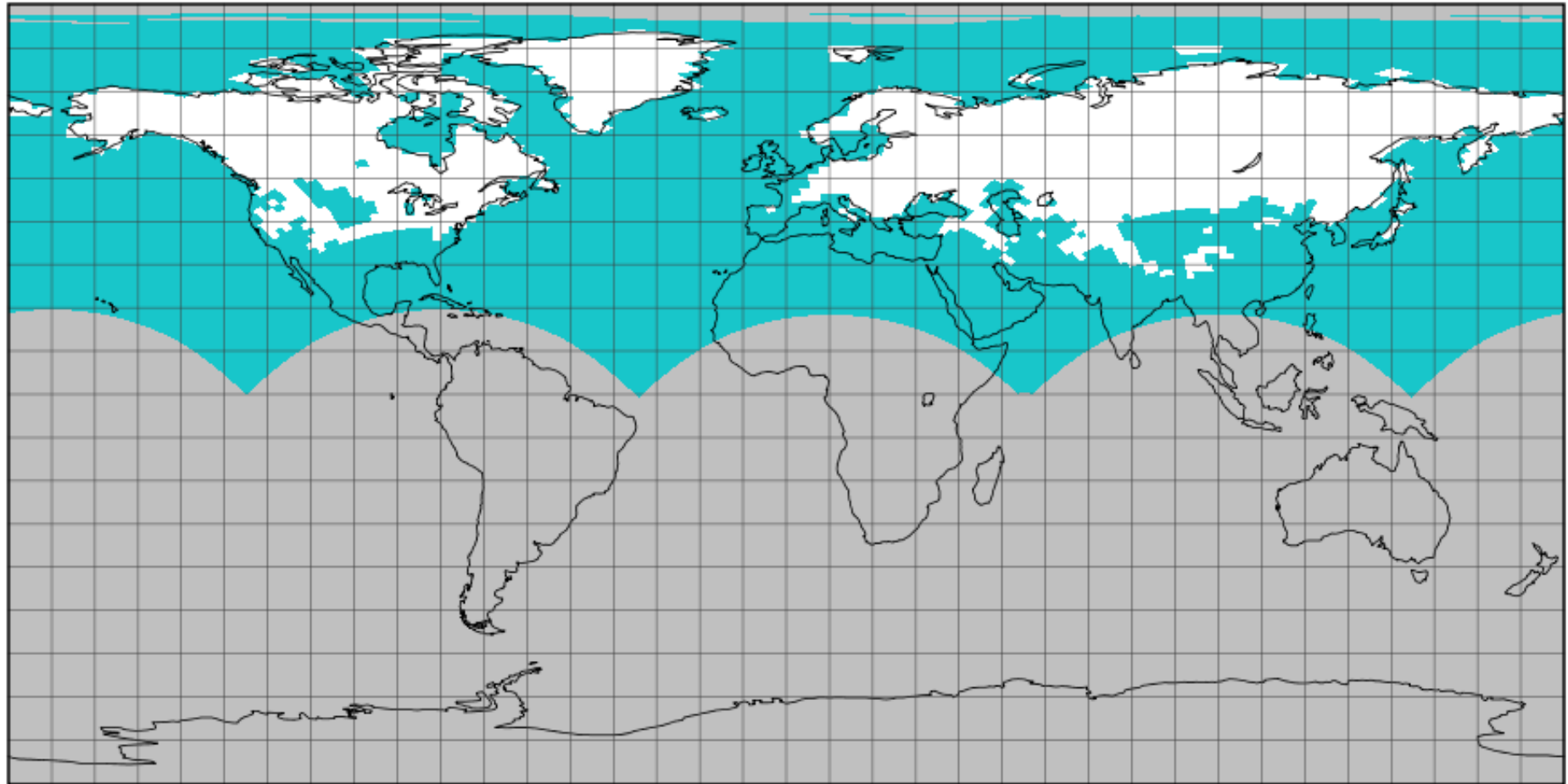
Backup FY12 CDR - Mean Layer Temperature - RSS

CDR Product: TCDR – Atmospheric Temperature at Four Layers, 1978-2011 (140 MB)
GEOSS Societal Benefit: Energy, Climate, Ecosystems

Project Status

- **PI sent second draft of C-ATBD, shaping up pretty good**
- PI sent all 5 flow charts of process
  - 3 of 5 sets of accompanying code is complete
- SA available on Google docs for final review
- About **60%** of the code has been documented
  - PI sent revised copyright statement : RSS maintains ©, but grants unrestricted access for transparency

NCDC SOW developed for:
1) Monthly updates for one year
2) QC tools and training

Next Action/Milestone

- PI send updated draft C-ATBD (8/20) -
- Send next set of documented code and flow chart (8/24) – 3 of 5
- Complete final edits on SA (8/24) - **done**

(Y) ## Project Risks

- Funding (SDS 2008)
  - Proposal submitted thru CICS back in May; funding will be **available to PI by Sept 15**.

ID	Task Name	Status	Start	Stop	FY12 Q1			FY12 Q2			FY12 Q3			FY12 Q4		
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Initial Assessment	100	10/17/2011	2/3/2012												
2	Transfer Prep	65	2/6/2012	9/14/2012												
2a	Comment Source Code	30	2/6/2012	9/14/2012												
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	40	3/19/2012	9/7/2012												
2c	Create NetCDF Dataset	90	5/3/2012	8/31/2012												
3	Tranfer Code, Docs, and Data	25	4/18/2012	9/14/2012												
4	Verify Code, Docs, and Data	25	4/19/2012	9/17/2012												
5	Archive Code, Docs, and Data	0	5/31/2012	9/21/2012												
6	Provide Access to Code, Docs, and Data	0	6/1/2012	9/28/2012												

PREDECISIONAL DRAFT INFORMATION

PI: Mears (RSS, SDS 2008)   RSAD TM: Dongsoo Kim

FY13 CDR - Vegetation Bundle

CDR Product: TCDR – Vegetation Bundle, 1981-2012 (2.5 TB)
GEOSS Societal Benefit: Agriculture, Ecosystems, Climate, Biodiversity

Project Status

• **No Change**
• Jessica Matthews met the PI's assistant at the CDR conference
• **Transition on hold while PI works on full AVHRR record**
• PI sent sample netCDF data
  - Collected feedback on google doc, shared with PI
• PI sent an updated flow diagram
  - much better than first one, still needs some tweaks

• Two CDRs in transition:
  - Deliver Surface Reflectance and NDVI in FY13
  - Postpone LAI and FPAR until more mature (FY13)

Next Action/Milestone

• Initial Assessment (3/22) – done
• Revised Flow Diagram (4/20) - done
• Samples of documented source code (4/27)
• Draft C-ATBD (6/1)

(Y) **Project Risks**

• Lots of work to be completed, FY13 priority.
  - PI received one year extension, no cost.

ID	Task Name	Status	Start	Stop	FY13 Q1			FY13 Q2			FY13 Q3			FY13 Q4		
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Initial Assessment	100	10/17/2011													
2	Transfer Prep	25	3/1/2012													
2a	Comment Source Code	10	3/1/2012													
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	25	3/15/2012													
2c	Create NetCDF Dataset	35	4/30/2012													
3	Tranfer Code, Docs, and Data	10	5/15/2012													
4	Verify Code, Docs, and Data	10	5/15/2012													
5	Archive Code, Docs, and Data	0	6/7/2012													
6	Provide Access to Code, Docs, and Data	0	6/15/2012													

TBD

Other CDR Discussion Items

- **Telecon with Bill Rossow (8/28)**
  - **Discussed way forward on notional schedule for transition of ISCCP CDR to IOC in FY13**
    - **Code delivery end of Sept**
    - **NCDC will do heavy processing (1983 – 2009) with verifications of select months from Bill**
    - **Calibration codes for 2010, 2011 to follow (Dec 2012)**
    - **Lots of documentation available; need to determine if it is acceptable as is or needs to be scaled down and put in CDRP templates**

- **Group discussion on PERSIANN CDR way forward (8/29)**
  - **Candace will draft SOW for delivery of an IOC CDR by May 2013**
  - **Will ask for all CDR parts and see if PI says it's obtainable or not with the funding already in place**

CDR Program Office
NPP/JPSS Climate Raw Data Records (C-RDRs) Project

Weekly Report – August 30, 2012

(1) VIIRS
- Integrating with the system infrastructure.

(2) CrIS
- Postponed.

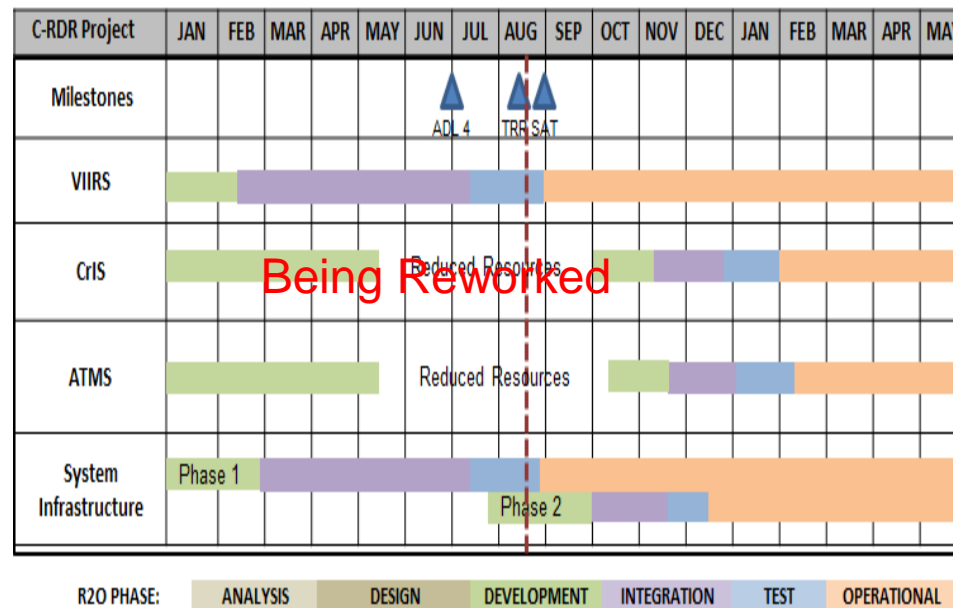**(3) ATMS**
- Postponed.

(4) System Infrastructure
- Integrating with the VIIRS C-RDR.

- **Providing metadata and Climate Forecast convention support for the snow cover CDR.**
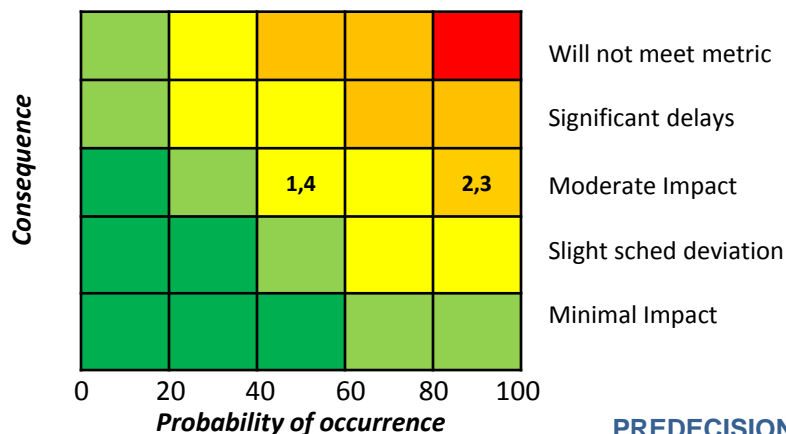- **Reworking the schedule. (Metadata Working Group, SIPGenSYS)**
- Validated post-launch auxiliary files in C-RDR format.
- Successfully created VIIRS C-RDR.

C-RDR Project	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
Milestones							▲ ADL 4		▲▲ TRR SAT								
VIIRS																	
CrIS						Being Reworked		Reduced Resources									
ATMS								Reduced Resources									
System Infrastructure	Phase 1							Phase 2									

R2O PHASE: ANALYSIS | DESIGN | DEVELOPMENT | INTEGRATION | TEST | OPERATIONAL

Risk Matrix

Consequence (y-axis, top to bottom):
- Will not meet metric
- Significant delays
- Moderate Impact
- Slight sched deviation
- Minimal Impact

Probability of occurrence (x-axis): 0 20 40 60 80 100

Cells: 1,4 (at ~40-60, Moderate Impact); 2,3 (at ~80-100, Moderate Impact)

Risk and Mitigation

VIIRS, CrIS, ATMS –
- Resources are being reduced. Delivery of CrIS and ATMS will be delayed.
- Operational software is under maintenance, updated versions may affect C-RDR ported version.

System Infrastructure –
Reliability of NPP RDRs from CLASS. Need to test ingest of RDRs from CLASS and develop an automated mechanism for re-requesting data.
- Ability of CLASS to handle the frequency and volume of NPP data. CLASS has been successful during system tests.
- Archive in CLASS is currently cost prohibitive. Need to identify alternate archive. Plan to store C-RDRs on HPSS until migration to CLASS.

8/30/2012

PREDECISIONAL DRAFT INFORMATION
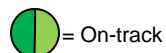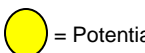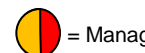
🟢 = On-track   🟡 = Potential management action required   🟠 = Management attention required

Visible Infrared Imaging Radiometer Suite (VIIRS)

C-RDR Product: Raw sensor measurements with usage and provenance metadata in easily accessible netCDF4 format
GEOSS Societal Benefit: Climate, Water, Ecosystems, Agriculture, Biodiversity, Energy

Project Status

- **Continued work on code for validation of C-RDRs against SDRs.**
- Completing internal review of VIIRS Product Specification.
- Completed Draft VIIRS C-RDR Product Specification.
- Completed writing the spacecraft diary portion of the VIIRS C-RDR unpacker (for testing/verification).
- Generated an image from a VIIRS C-RDR.
- Successfully ran VIIRS data from CLASS through C-RDR packer.
- Completed dynamic C-RDR file-level metadata code.
- Implemented and verified netCDF compression.
- Verifying (IDPS) documentation and code changes with DEWG.
- Completed writing science and spacecraft diary data.
- Completed test of code that writes VIIRS Support Data.

Next Action / Milestone

- Integrating the VIIRS C-RDR software and the system infrastructure.

(Y)

Project Risks

- Complexity of the NPP/JPSS RDRs and operational software
- Operational software is under maintenance, updated versions may affect C-RDR ported version

Project Schedule

| ID	Task Name	Status	Start	Stop	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
					FY12 Q1			FY12 Q2			FY12 Q3			FY12 Q4		
1	Analysis	Completed	10/23/2009	5/4/2010												
2	Design	Completed	5/6/2010	1/5/2011												
3	Development	95.00%	1/6/2011	1/30/2012												
3a	Develop VIIRS processing component	95.00%	1/6/2011	1/12/2012												
3b	Test VIIRS processing component	95.00%	12/28/2011	1/30/2012												
4	Integration	10.00%	1/31/2012	3/26/2012				Being Reworked								
5	Test		3/23/2012	4/12/2012												
5a	Dry Runs		3/23/2012	4/11/2012												
5b	System Acceptance Test		4/12/2012	4/12/2012												
6	Operational		4/13/2012													

POC: Biard

C-RDR System Infrastructure

C-RDR Product: Infrastructure to automate the production of the C-RDRs.
GEOSS Societal Benefit: Climate, Water, Ecosystems, Agriculture, Biodiversity, Energy

Project Status

- **Setting up integration environment on Blade Center.**
- **Completed scripts for staging Support Data files for processing.**
- Continued work on algorithm for staging VIIRS RDRs for processing.
- Completed validation of post-launch auxiliary files in C-RDR format.
- Using ADL 4.0 code to create required metadata for auxiliary files.
- Investigating missing metadata for auxiliary data from CLASS.
- Modified supporting data software for auxiliary data changes.
- Created initial VIIRS C-RDR from CLASS mission data.
- Development environment is set up on the CICS network.
- Working on managing queues and processing jobs.
- Locating, validating, and statusing files for processing.
- Developing code for ingest detection and processing.

Next Action / Milestone

- Integrating and testing the system infrastructure.

Y

Project Risks

- Need to develop an automated re-request mechanism for CLASS.

Project Schedule

ID	Task Name	Status	Start	Stop	FY12 Q1 Oct	Nov	Dec	FY12 Q2 Jan	Feb	Mar	FY12 Q3 Apr	May	Jun	FY12 Q4 Jul	Aug	Sep
1	Analysis	Completed	9/29/2010	4/22/2011												
2	Design	90.00%	4/25/2011	7/8/2011												
3	Development	80.00%	5/31/2011	2/28/2012												
3a	Develop infrastructure	90.00%	5/31/2011	2/14/2012												
3b	Test infrastructure	70.00%	9/27/2011	2/28/2012				Being Reworked								
4	Integration (Phase 2)	5.00%	1/31/2012	3/26/2012												
5	Test		3/23/2012	4/12/2012												
5a	Dry Runs		3/23/2012	4/11/2012												
5b	System Acceptance Test		4/12/2012	4/12/2012												
6	Operational		4/13/2012													

POC: Copley

Weekly Report – August 30, 2012

1 **OISST – Optimum Interpolated Sea Surface Temperature**
- **Started refactoring code.**
- **Defined list of tasks for refactoring of each component.**
- Developing tests (module & component) to verify code execution.
- Completed testing of static analysis and complexity tools.
- Conducted Technology Review July 25.
- Identifying tasks and developing plan for re-writing/refactoring.
- Initial technical assessment completed.
- Established a common baseline and environment for code.

Operations:
- Updated and tested scripts to handle new sea ice data format.
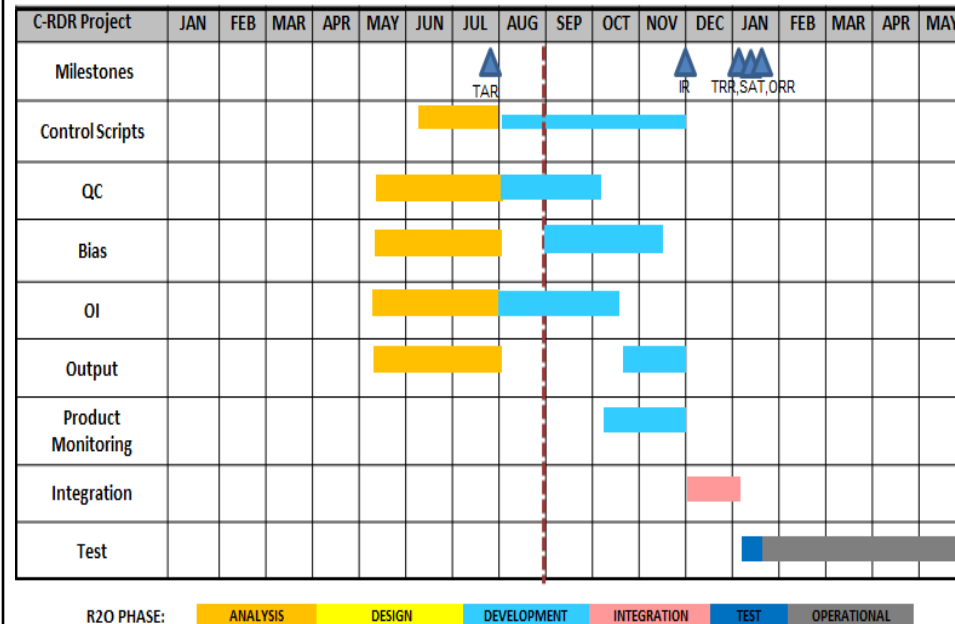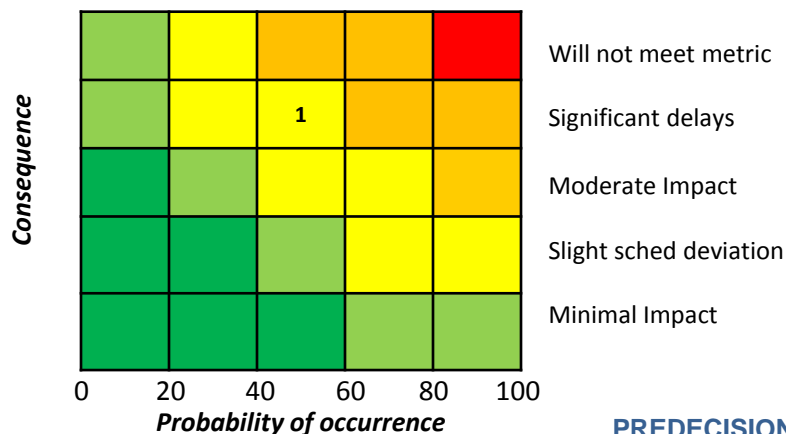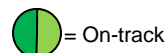
C-RDR Project	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
Milestones							TAR				IR		TRR,SAT,ORR				
Control Scripts																	
QC																	
Bias																	
OI																	
Output																	
Product Monitoring																	
Integration																	
Test																	

R2O PHASE: ANALYSIS | DESIGN | DEVELOPMENT | INTEGRATION | TEST | OPERATIONAL

Risk Matrix

Consequence (y-axis): Will not meet metric / Significant delays / Moderate Impact / Slight sched deviation / Minimal Impact

Probability of occurrence (x-axis): 0 20 40 60 80 100

Risk and Mitigation

Resource availability for performing the transition.

Configuration Management (CM) process not defined for operations.

No Quality Assurance team available.

Modifying existing software for internal software changes. Product output must remain unchanged for users.

Common infrastructure for operations is not fully defined.

OISST processing will be on a 64 bit architecture.

PREDECISIONAL DRAFT INFORMATION

8/30/2012

= On-track   = Potential management action required   = Management attention required

Weekly Report – August 31, 2012

Team is developing a comprehensive report that will document FY 12 work performed, results obtained, conclusions, and recommendations.

(5) **5&6. Familiarization Runs and Diagnostics (was July 7)**
- Running on CICS with new test day suggested by PI. **Risk 8**

(7) **7&8. Develop & Run Algorithm Test (was August 11)**
- Reducing compiler optimization gives different numerical results, significance not evaluated yet. **Risk 8**

(9) **9. Derive / Document Architecture (September 15)**
- Working on control flow documentation.

(10) **10. Identify Problems and Opportunities (September 15)**
- Completed trace from HDF output variable names to names within code. 96 variables in all, some turned off by hard-coded flags.
- Developing concepts for abstraction of data structures within code to reduce cyclomatic complexity in many routines.
- Found additional evidence that code baseline is a snapshot of PI work in progress, numerous changes expected in IOC update. **Risk 3.**
- Code for 8 unnecessary output files greatly increases length and complexity of two of top 10 "worst" routines in first executable.

FY 12 3.1 & 3.2		Fe	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Develop White Paper	✔ (through Apr)							
3	Establish Dev Environment			✔					
4	Build and Test Infrastructure				✔				
5,6	Familiarization & Diagnostics								
7,8	Develop & Run Algorithm Test								
9	Derive / Document Architecture								
10	Identify Probs & Opportunities								
11	Prioritize Probs & Opportunities								

Risk Matrix

Consequence (vertical axis):
- Will not meet metric
- Significant delays — 7,8
- Moderate Impact — 5,6,9
- Slight sched deviation — 10
- Minimal Impact

Probability of occurrence (0 – 100)

Top Risks and Mitigation

R3. Ongoing parallel development by PI
- Mitigation: Use good differencing tools. Incorporate only those changes that have a good justification from the CDR perspective.

R8. Personnel on task at maximum work load
- With recent budget cuts to the CDRP the personnel still engaged on this task are at maximum work level. More budget challenges could result in the loss of the remaining key personnel and jeopardize the completion of this task.

R10. No sustainable commitment for independent Quality Assurance
- QA will be performed by team. Risk is that this work will not be performed as well as it would be by an experienced, independent QA expert.

R13. PI Availability
- Travel to Wisconsin early FY13 for face to face meeting.

8/30/2012

Weekly Report – August 30, 2012

Data Selection & Subsetting for Gulf of Farallones (Mike U.)

- GridSat 1B ✓ , Pathfinder SST ✓ , Sea Surface Height ✓ , SeaWiFS Ocean Color, MODIS Ocean Color, ISSCP Clouds, NARR subset (<28 variables)
- Dataset descriptions added ✓
- Integrating and testing the statistical parameters

Marine Protected Area (MPA) User Interface (John S. & Steve A.)

- Tailored menus ✓ & analysis tools
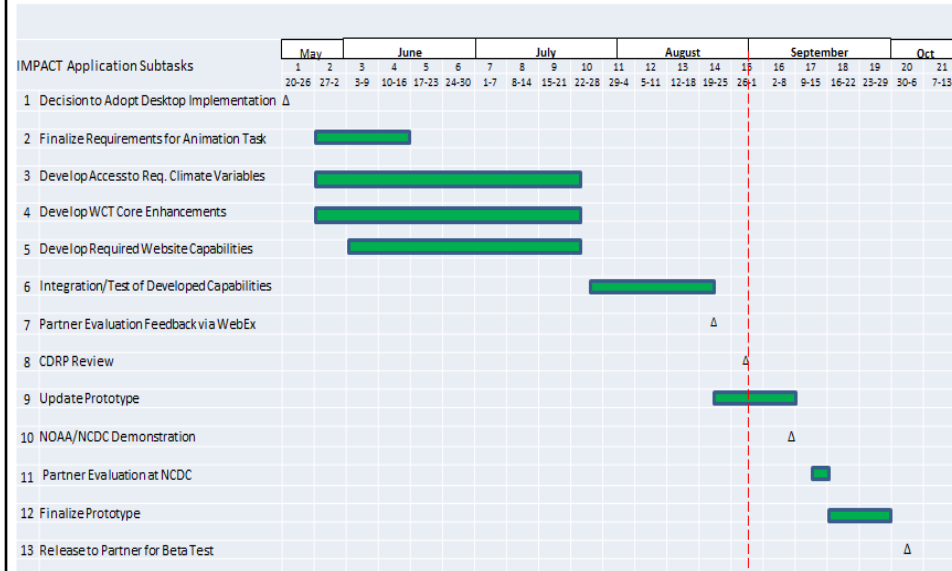- Visualization capabilities (Animation ✓ ,split windows)

End User Interaction (Benet D. & Karsten S.)

- WebEx demo with customer conducted 8/23/12 ✓
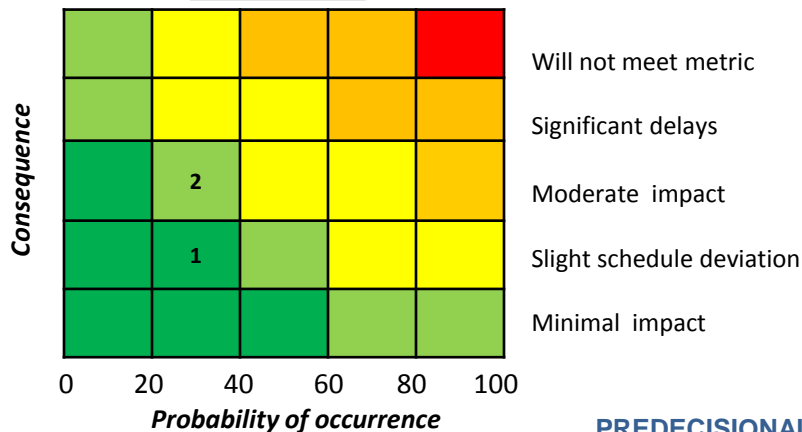- Went well - but a bit too technical due to new player

Prototype Delivery Demonstrations

- 8/28 demo to CDRP delayed due to SAN outages

Prototyping Schedule

IMPACT Application Subtasks				
1 Decision to Adopt Desktop Implementation Δ				
2 Finalize Requirements for Animation Task				
3 Develop Access to Req. Climate Variables				
4 Develop WCT Core Enhancements				
5 Develop Required Website Capabilities				
6 Integration/Test of Developed Capabilities				
7 Partner Evaluation Feedback via WebEx				
8 CDRP Review				
9 Update Prototype				
10 NOAA/NCDC Demonstration				
11 Partner Evaluation at NCDC				
12 Finalize Prototype				
13 Release to Partner for Beta Test				

Risk Matrix

Consequence (y-axis):
- Will not meet metric
- Significant delays
- Moderate impact
- Slight schedule deviation
- Minimal impact

Probability of occurrence (x-axis): 0 20 40 60 80 100

(Risk 2 plotted at Moderate impact; Risk 1 plotted at Slight schedule deviation)

Risk and Mitigation

(1) **Limited resources have other obligations**
- **Schedule is on track, resources committed**
- **As planned for, losing Steve A. to other efforts – He's been great!**

(2) **GFNMS has no funds to travel to NCDC for hands-on evaluation in September**

● No change   ↑ Increasing Risk   ↓ Decreasing Risk

PREDECISIONAL DRAFT INFORMATION

= On-track   = Potential management action required   = Management attention required